**Topic: Exponential Functions**

**Activity: Every Day for a Month. . .**

*Note: These activities are similar to “the rich mathematician” but are modified for appropriate grade levels. By doing these activities students will have the background experience that will lead to the learning of exponential functions. Lessons are briefly described so teachers can modify/adjust/extend as needed for their classroom.*

K-3:

* Problem--Would you rather get 100 pieces of candy each day for the month of October or get double the amount of candy each day for the month? (However you only start with 1 piece.)
* Materials--Use base 10 blocks. Model each day using 1 block to represent 1 piece of candy, rod=10 pieces, square=100, cube =1000. Also set up data table on chart paper.

|  |  |  |
| --- | --- | --- |
| Day | Candy--100 per day | Candy--Double each day |
| 1 | 100 | 1 |
| 2 | 200 | 2 |
| 3 | 300 | 4 |
| 4 | 400 | 8 |

* Process—1. Gather student opinions to the problem. One student will hold ‘candy’ for 100 pieces a day another student will hold ‘candy’ for the double each day option. Another student will record candy amounts per day on the data table. 2. As you go through each day you may need an additional student to help hold the ‘candy’ for the double each day option. 3. Discuss patterns in the data table. You should not have to go beyond day 12 because at this point the double each day option is noticeably bigger.
* Further considerations: 1. This was designed as a whole class activity, but could be done in smaller groups if appropriate. 2. Writing response—answer the problem, describe patterns, or extend—would you choose the same option if you were only given candy for a week? When does the option to double each day make sense?